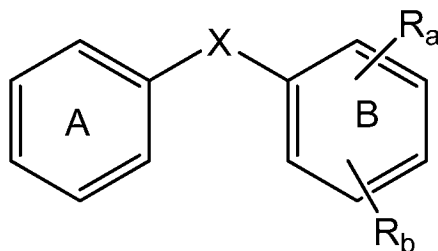


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (previously presented) A composition which selectively reduces blood flow to a tumor region and forms a reactive oxygen species *in vivo*, wherein said composition comprises an anticancer agent having a quinone, quinone prodrug, catechol or catechol prodrug moiety, provided that said composition is not combretastatin A-1 or a salt, ester or prodrug thereof.
2. (original) The composition of claim 1 wherein said moiety is in the *ortho* position.
3. (original) The composition of claim 1 wherein said anticancer agent is a tubulin binding agent.
4. (currently amended) A compound comprising the structure of formula I:  
wherein:

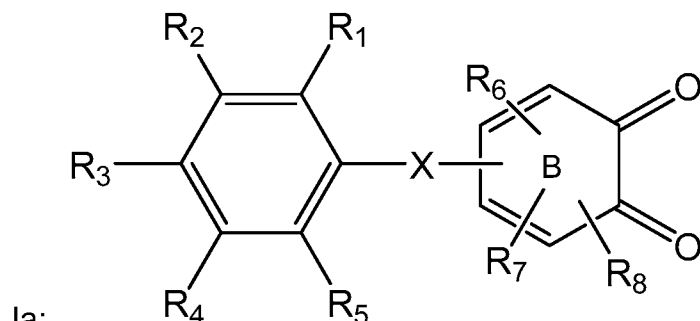


- Ring A is optionally substituted with one to five substituents selected from
  - a) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - b) a halogen or trihaloalkyl;
  - c) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - d) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;

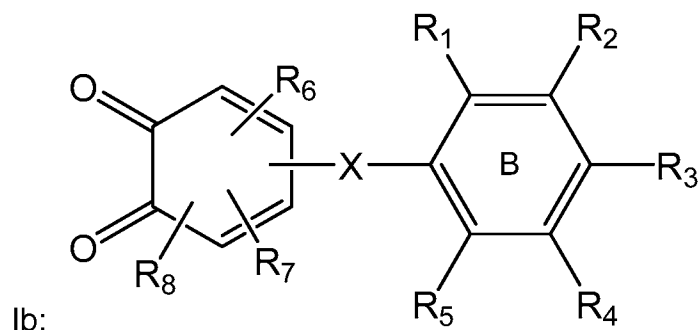
- e)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
  - f) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;
- Ring B comprises at least one structure denoted by  $\text{R}_a$  and  $\text{R}_b$  which represent an *ortho*-quinone moiety  $(-\text{C}=\text{O})-(\text{C}=\text{O})-$ , *ortho*-catechol  $(-\text{C}(\text{OH})-(\text{C}(\text{OH})-)$  or *ortho*-catechol pro-drug moiety  $(-\text{C}(\text{O}-\text{Prodrug moiety})-(\text{C}(\text{O}-\text{Prodrug moiety})-)$ ; and the remaining carbons of Ring B are optionally substituted with one or five substituents selected from
- g) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - h) a halogen or trhaloalkyl;
  - i) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - j) an OH, or a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  primary, secondary, or tertiary alcohol;
  - k)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
  - l) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and
- Bridge X is selected from the group consisting of alkenes  $(-\text{CR}_9=\text{CR}_{10}-)$ , alkanes  $(\text{CR}_9-\text{CR}_{11}\text{R}_{12})$ , alkynes, amides  $(-\text{NR}_9-\text{CO}-)$ , amines  $(-\text{NH}-, -\text{NR}_8-, \text{ or } -\text{CR}_9-\text{N}-)$ , carbonyl  $(-\text{CO}-)$ , ethers  $(-\text{C R}_8-\text{O}-)$ , sulfonamides  $(-\text{NR}_8-\text{SO}_2-)$ , sulfonates  $(-\text{O}-\text{SO}_2-)$ , aryls, oxo  $(-\text{O}- \text{ or } -\text{O R}_8-)$ , thio  $(-\text{S}-)$  cycloalkyls, propanones  $(-\text{C}(\text{O})-\text{CR}_8=\text{CR}_9-)$ , ~~sulfonamides  $(-\text{NR}_8-(\text{S}=\text{O})_2-)$ , and sulfonates  $(-\text{O}-(\text{S}=\text{O})_2-)$~~ ; wherein  $\text{R}_8$ ,  $\text{R}_9$ ,  $\text{R}_{10}$ , or  $\text{R}_{11}$  are alternatively H, alkyl, amino, amido, cyano, hydroxyl, or carboxyl;

provided that said compound is not combretastatin A1 or a salt, ester, or prodrug thereof.

5. (currently amended) A compound comprising a quinone, quinone prodrug, or a pharmaceutically acceptable salt form thereof having one of the following general structures:



or



wherein:

- a. at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> or R<sub>8</sub> are the same or different and are optionally selected from
  - i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;

- v)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining  $\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$ ,  $\text{R}_4$ ,  $\text{R}_5$ ,  $\text{R}_6$ ,  $\text{R}_7$ , or  $\text{R}_8$  are H; and

- b. X is selected from the group consisting of alkenes ( $-\text{CR}_9=\text{CR}_{10}-$ ), alkanes ( $\text{CR}_9-\text{CR}_{11}\text{R}_{12}$ ), alkynes, amides ( $-\text{NR}_9-\text{CO}-$ ), amines ( $-\text{NH}-$ ,  $-\text{NR}_8-$ , or  $-\text{CR}_9-\text{N}-$ ), carbonyl ( $-\text{CO}-$ ), ethers ( $-\text{C R}_8-\text{O}-$ ), sulfonamides ( $-\text{NR}_8-\text{SO}_2-$ ), sulfonates ( $-\text{O}-\text{SO}_2-$ ), aryls, oxo ( $-\text{O}-$  or  $-\text{O R}_8-$ ), thio ( $-\text{S}-$ ) cycloalkyls, propanones ( $-(\text{C}=\text{O})-\text{CR}_8=\text{CR}_9-$ ), ~~sulfonamides ( $-\text{NR}_8-(\text{S}=\text{O})_2-$ ), and sulfonates ( $-\text{O}-(\text{S}=\text{O})_2-$ )~~; wherein  $\text{R}_8$ ,  $\text{R}_9$ ,  $\text{R}_{10}$ , or  $\text{R}_{11}$  are alternatively H, alkyl, amino, amido, cyano, hydroxyl, or carboxyl.

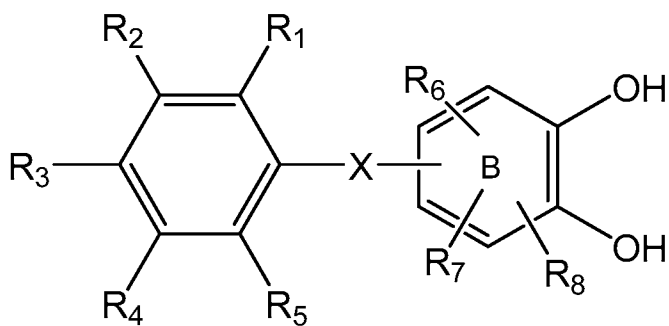
6. (original) The compound of claim 5, wherein X forms a covalent linkage between Ring Z and B comprising two contiguous atoms of the same or different element.

7. (original) The compound of claim 6, wherein the covalent linkage is an ethylene group ( $-\text{CH}=\text{CH}-$ ) and Rings A and B are in a cis (Z) isomeric configuration.

8. (original) The compound of claim 7, wherein  $\text{R}_2$ ,  $\text{R}_3$ , and  $\text{R}_4$  are methoxy.

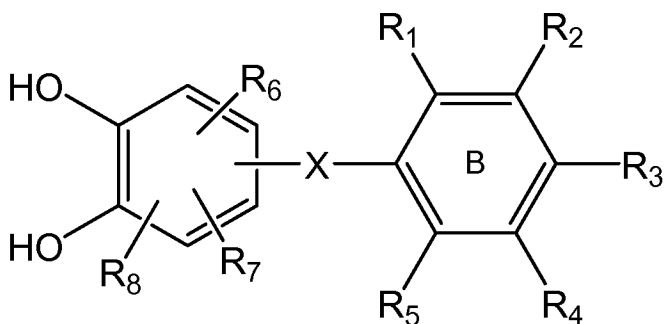
9. (original) The compound of claim 5, wherein said quinone is a bioreductive agent which is reductively activated *in vivo* to form a catechol capable of participating in a redox cycling reaction to form one or more Reactive Oxygen Species ("ROS").

10. (currently amended) A compound comprising a quinone, quinone prodrug, or a pharmaceutically acceptable salt form thereof having one of the following general structures:



IIa:

or



IIb:

wherein:

- a. at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> or R<sub>8</sub> are the same or different and are selected from:
  - i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
  - v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
  - vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, or R<sub>8</sub> are H; and

- b. X is selected from the group consisting of alkenes (-CR<sub>9</sub>=CR<sub>10</sub>-), alkanes (CR<sub>9</sub>-CR<sub>11</sub>R<sub>12</sub>), alkynes, amides (-NR<sub>9</sub>-CO=), amines (-NH-, -NR<sub>8</sub>-, or -CR<sub>9</sub>-N-), carbonyl (-CO-), ethers (-C R<sub>8</sub>-O-), sulfonamides (-NR<sub>8</sub>-SO<sub>2</sub>-), sulfonates (-O-SO<sub>2</sub>-), aryls, oxo (-O- or -O R<sub>8</sub>-), thio (-S-) cycloalkyls, propanones (-(C=O)-CR<sub>8</sub>=CR<sub>9</sub>-), ~~sulfonamides (-NR<sub>8</sub>-(S=O)<sub>2</sub>-), and sulfonates (-O-(S=O)<sub>2</sub>-)~~; wherein R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, or R<sub>11</sub> are alternatively H, alkyl, amino, amido, cyano, hydroxyl, or carboxyl

provided that said compound is not combretastatin A1 or a salt, ester, or prodrug thereof.

11. (original) The compound of claim 10, wherein X forms a covalent linkage between Ring A and B, comprising two contiguous atoms of the same or different element.

12. (original) The compound of claim 11, wherein the covalent linkage is an ethylene group (-CH=CH-), and Rings A and B are in a cis (Z) isomeric configuration.

13. (original) The compound of claim 12, wherein R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are methoxy.

14. (original) The compound of claim 13, wherein R<sub>8</sub> is selected from:

- i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trihaloalkyl;
- iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
- v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining R<sub>1</sub>, R<sub>5</sub>, R<sub>6</sub>, and R<sub>7</sub> are H.

15. (original) The compound of claim 14, wherein R<sub>8</sub> is OH or –O-CH<sub>2</sub>-CH=CH<sub>2</sub>.

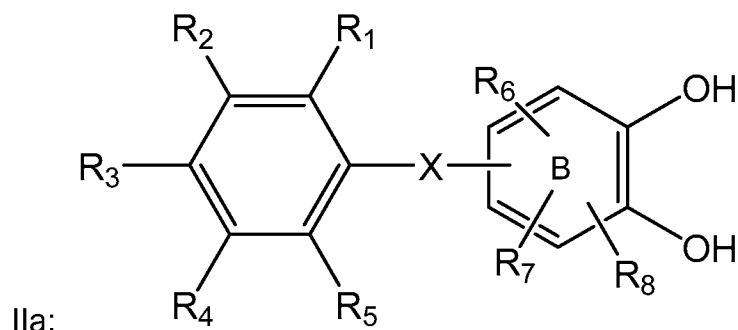
16. (original) The compound of claim 4, wherein said catechol is a biooxidative agent which is oxidatively activated *in vivo* to form a quinone capable of participating in a redox cycling reaction to form one or more Reactive Oxygen Species (“ROS”).

17. (withdrawn) A method of inhibiting the proliferation of tumor cells, comprising administering to a mammal an antiproliferative agent capable of forming a Reactive Oxygen Species.

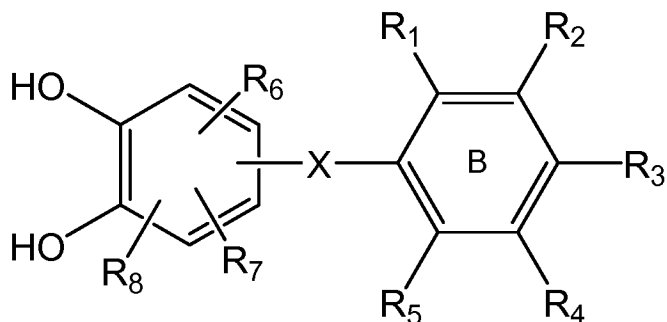
18. (withdrawn) A method of inhibiting the proliferation of tumor cells, comprising administering to a mammal a composition which selectively reduces blood flow to a tumor region and forms a ROS *in vivo*, wherein said composition comprises an anticancer agent having a quinone, quinone prodrug, catechol or catechol prodrug moiety.

19. (withdrawn) The method of claim 18, wherein said reduced tumor blood flow is reversible.

20. (withdrawn – currently amended) A method of inhibiting the proliferation of tumor cells, comprising administering to a mammal a catechol, catechol prodrug, or a pharmaceutically acceptable salt form thereof having one the following general structures:



or



IIb:

wherein:

- a. at least one of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$  or  $R_8$  are the same or different and are selected from:
  - i) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  primary, secondary, or tertiary alcohol;
  - v)  $NH_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
  - vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ , or  $R_8$  are H; and

- b. X is selected from the group consisting of alkenes ( $-CR_9=CR_{10}-$ ), alkanes ( $CR_9-CR_{11}R_{12}$ ), alkynes, amides ( $-NR_9-CO-$ ), amines ( $-NH-$ ,  $-NR_8-$ , or  $-CR_9-N-$ ), carbonyl ( $-CO-$ ), ethers ( $-C R_8-O-$ ), sulfonamides ( $-NR_8-SO_2-$ ), sulfonates ( $-O-SO_2-$ ), aryls, oxo ( $-O-$  or  $-O R_8-$ ), thio ( $-S-$ ) cycloalkyls, propanones ( $-(C=O)-CR_8=CR_9-$ ), ~~sulfonamides ( $-NR_8-(S=O)_2-$ ), and sulfonates ( $-O-(S=O)_2-$ );~~ wherein



R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, or R<sub>11</sub> are alternatively H, alkyl, amino, amido, cyano, hydroxyl, or carboxyl.

21. (withdrawn) The compound of claim 20, wherein X forms a covalent linkage between Ring A and B, comprising two contiguous atoms of the same or different element.

22. (withdrawn) The compound of claim 21, wherein the covalent linkage is an ethylene group (-CH=CH-), and Rings A and B are in a cis (Z) isomeric configuration.

23. (withdrawn) The compound of claim 22, wherein R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are methoxy.

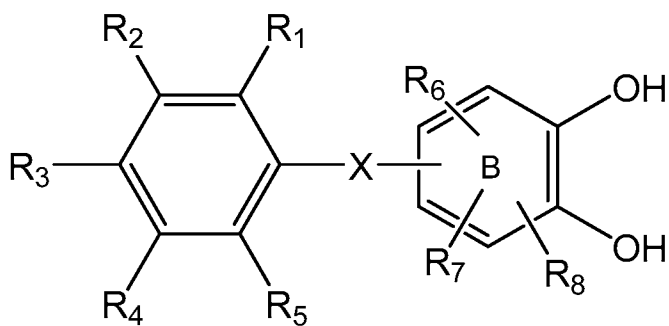
24. (withdrawn) The compound of claim 23, wherein R<sub>8</sub> is selected from:

- i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trihaloalkyl;
- iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
- v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining R<sub>1</sub>, R<sub>5</sub>, R<sub>6</sub>, and R<sub>7</sub> are H.

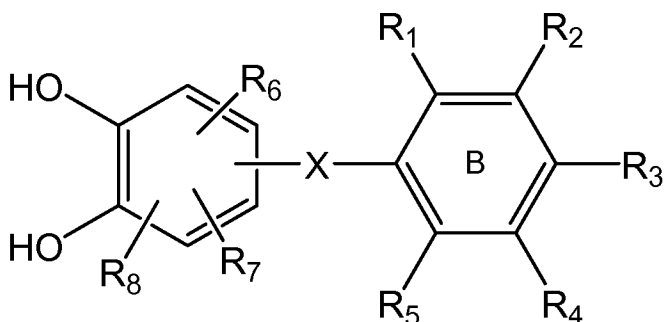
25. (withdrawn) The method of claim 24, wherein R<sub>8</sub> is OH or -O-CH<sub>2</sub>-CH=CH<sub>2</sub>.

26. (withdrawn – currently amended) A method of reducing blood flow in a patient suffering from a vascular proliferative disorder, comprising administering to the patient an effective amount of a catechol, catechol prodrug, or a pharmaceutically acceptable salt form thereof of one the following general structures:



IIa:

or



IIb:

wherein:

- a. at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> or R<sub>8</sub> are the same or different and are selected from:
  - i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
  - v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido; or
  - vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

and the remaining R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, or R<sub>8</sub> are H; and

- b. X is selected from the group consisting of alkenes (-CR<sub>9</sub>=CR<sub>10</sub>-), alkanes (CR<sub>9</sub>-CR<sub>11</sub>R<sub>12</sub>), alkynes, amides (-NR<sub>9</sub>-CO=), amines (-NH-, -NR<sub>8</sub>-, or -CR<sub>9</sub>-N-), carbonyl (-CO-), ethers (-C R<sub>8</sub>-O-), sulfonamides (-NR<sub>8</sub>-SO<sub>2</sub>-), sulfonates (-O-SO<sub>2</sub>-), aryls, oxo (-O- or -O R<sub>8</sub>-), thio (-S-) cycloalkyls, propanones (-(C=O)-CR<sub>8</sub>=CR<sub>9</sub>-), ~~sulfonamides (-NR<sub>8</sub>-(S=O)<sub>2</sub>-), and sulfonates (-O-(S=O)<sub>2</sub>-)~~; wherein R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, or R<sub>11</sub> are alternatively H, alkyl, amino, amido, cyano, hydroxyl, or carboxyl.

27. (withdrawn) The compound of claim 26, wherein X forms a covalent linkage between Ring A and B, comprising two contiguous atoms of the same or different element.

28. (withdrawn) The compound of claim 27, wherein the covalent linkage is an ethylene group (-CH=CH-), and Rings A and B are in a cis (Z) isomeric configuration.

29. (withdrawn) The compound of claim 28, wherein R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are methoxy.

30. (withdrawn) The compound of claim 29, wherein R<sub>8</sub> is selected from:

- i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trihaloalkyl;
- iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
- v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle;

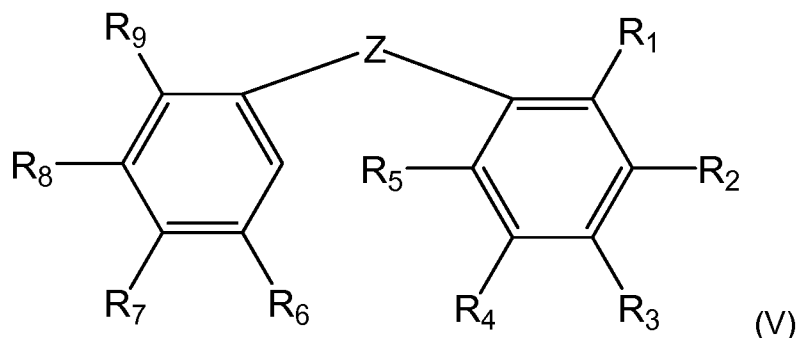
and the remaining R<sub>1</sub>, R<sub>5</sub>, R<sub>6</sub>, and R<sub>7</sub> are H.

31. (withdrawn) The method of claim 30, wherein  $R_8$  is OH or  $-O-CH_2-CH=CH_2$ .

32. (withdrawn) The method of claim 26, wherein said vascular proliferative disorder is selected from the group consisting of solid tumor cancer, wet age-related macular degeneration, diabetic retinopathy, retinopathy of prematurity, diabetic macular edema, uveitis, corneal neovascularization, psoriasis, rheumatoid arthritis, atheroma, restenosis, Kaposi's sarcoma, haemangioma, and inflammatory diseases characterized by vascular proliferation.

33. (withdrawn) The method of claim 26, wherein the blood flow reduction causes the occlusion, destruction, or damage of proliferating vasculature.

34. (original) A composition of the following formula (V):



wherein

- a. Z is an ethylene ( $-CH=CH-$ ) bridge in the cis (Z) isomeric configuration;
- b.  $R_1$  and  $R_2$  are OH or a prodrug form thereof;
- c. at least one of  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ , and  $R_9$  are optionally
  - i) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  primary, secondary, or tertiary alcohol;

- v)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

the remaining  $\text{R}_3$ ,  $\text{R}_4$ ,  $\text{R}_5$ ,  $\text{R}_6$ ,  $\text{R}_7$ ,  $\text{R}_8$  and  $\text{R}_9$  are hydrogen.

35. (original) The composition of claim 34, wherein at least three of  $\text{R}_6$ ,  $\text{R}_7$ ,  $\text{R}_8$ , and  $\text{R}_9$  are not hydrogen.

36. (original) The composition of claim 35, wherein  $\text{R}_6$ ,  $\text{R}_7$  and  $\text{R}_8$  are the same.

37. (original) The composition of claim 36, wherein  $\text{R}_6$ ,  $\text{R}_7$  and  $\text{R}_8$  are methoxy.

38. (original) The composition of claim 37, wherein  $\text{R}_3$  is

- i) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trhaloalkyl;
- iii) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  primary, secondary, or tertiary alcohol;
- v)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

$\text{R}_4$ ,  $\text{R}_5$ , and  $\text{R}_9$  are hydrogen.

39. (currently amended) The composition of claim 38, wherein  $R_3$  is  $-\text{CH}_3$ ,  $-\text{CH}_2\text{CH}_3$ ,  $-\text{OCH}_2\text{CH}_3$ ,  $-\text{F}$ ,  $-\text{Br}$ ,  $-\text{CF}_3$ ,  $-\text{CBr}_3$ ,  $-\text{OH}$ ,  $-\text{O}-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  ~~$-\text{CH}_2-\text{CH}_2=\text{CH}_2$~~ ,  $-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  $-\text{NH}_2$ ,  $-\text{NO}_2$ , -cyano, -carboxy, or -benzyl.

40. (original) The composition of claim 39, wherein  $R_6$ ,  $R_7$ , and  $R_8$  are F.

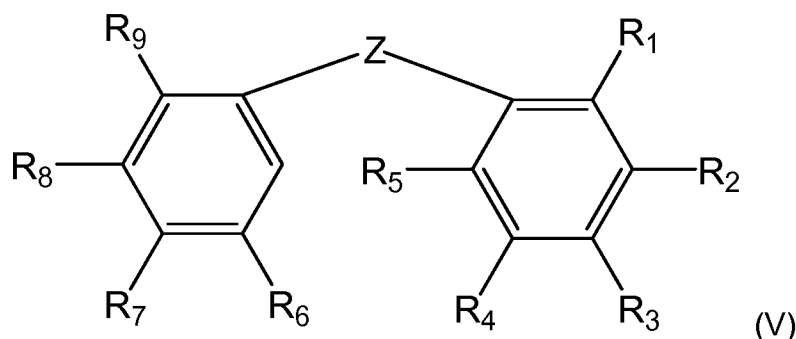
41. (original) The composition of claim 40, wherein  $R_3$  is

- i) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trhaloalkyl;
- iii) a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a  $\text{C}_1$ ,  $\text{C}_2$ ,  $\text{C}_3$ ,  $\text{C}_4$  or  $\text{C}_5$  primary, secondary, or tertiary alcohol;
- v)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

$R_4$ ,  $R_5$ , and  $R_9$  are hydrogen.

42. (currently amended) The composition of claim 41, wherein  $R_3$  is  $-\text{CH}_3$ ,  $-\text{CH}_2\text{CH}_3$ ,  $-\text{OCH}_2\text{CH}_3$ ,  $-\text{F}$ ,  $-\text{Br}$ ,  $-\text{CF}_3$ ,  $-\text{CBr}_3$ ,  $-\text{OH}$ ,  $-\text{O}-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  ~~$-\text{CH}_2-\text{CH}_2=\text{CH}_2$~~ ,  $-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  $-\text{NH}_2$ ,  $-\text{NO}_2$ , -cyano, -carboxy, or -benzyl.

43. (Withdrawn) A method of inhibiting the proliferation of tumor cells, comprising administering to a mammal a catechol, catechol prodrug, or a pharmaceutically acceptable salt form thereof of formula (V):



wherein

- a. Z is an ethylene (-CH=CH-) bridge in the cis (Z) isomeric configuration;
- b. R<sub>1</sub> and R<sub>2</sub> are OH or a prodrug form thereof;
- c. at least one of R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are optionally
  - i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
  - ii) a halogen or trhaloalkyl;
  - iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
  - iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
  - v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
  - vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

the remaining R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub> and R<sub>9</sub> are hydrogen.

44. (withdrawn) The method of claim 43, wherein at least three of R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are not hydrogen.

45. (withdrawn) The method of claim 44, wherein R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> are the same.

46. (withdrawn) The method of claim 45, wherein R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> are methoxy.

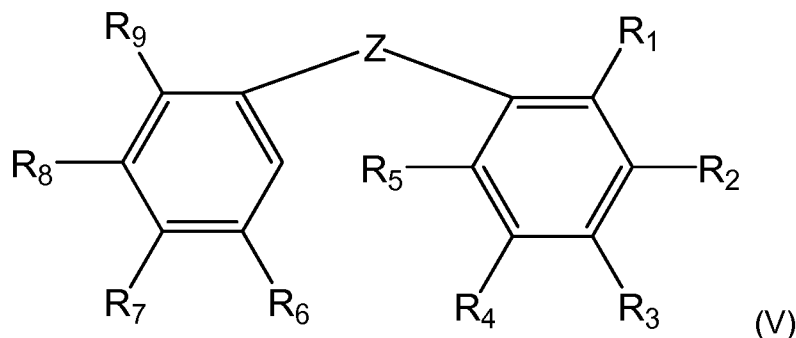
47. (withdrawn) The method of claim 46, wherein  $R_3$  is

- i) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trhaloalkyl;
- iii) a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a  $C_1$ ,  $C_2$ ,  $C_3$ ,  $C_4$  or  $C_5$  primary, secondary, or tertiary alcohol;
- v)  $NH_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

$R_4$ ,  $R_5$ , and  $R_9$  are hydrogen.

48. (withdrawn - currently amended) The method of claim 47, wherein  $R_3$  is  $-CH_3$ ,  $-CH_2CH_3$ ,  $-OCH_2CH_3$ ,  $-F$ ,  $-Br$ ,  $-CF_3$ ,  $-CBr_3$ ,  $-OH$ ,  $-O-CH_2-CH=CH_2$ ,  ~~$-CH_2-CH_2-CH_2-$~~ ,  $-CH_2-CH=CH_2-$ ,  $-NH_2$ ,  $-NO_2$ , -cyano, -carboxy, or -benzyl.

49. (withdrawn) A method of reducing blood flow in a patient suffering from a vascular proliferative disorder, comprising administering to the patient an effective amount of a catechol, catechol prodrug, or a pharmaceutically acceptable salt form thereof of formula (V):



wherein

- a. Z is an ethylene ( $-CH=CH-$ ) bridge in the cis (Z) isomeric configuration;



b. R<sub>1</sub> and R<sub>2</sub> are OH or a prodrug form thereof;

c. at least one of R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are optionally

- i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trhaloalkyl;
- iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;
- v) NH<sub>2</sub> or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

the remaining R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub> and R<sub>9</sub> are hydrogen.

50. (withdrawn) The method of claim 49, wherein at least three of R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are not hydrogen.

51. (withdrawn) The method of claim 50, wherein R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> are the same.

52. (withdrawn) The method of claim 51, wherein R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> are methoxy.

53. (withdrawn) The method of claim 52, wherein R<sub>3</sub> is

- i) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight-chain lower alkoxy, cycloalkoxy, heterocycloalkoxy, aryloxy, or lower alkanoyloxy;
- ii) a halogen or trhaloalkyl;
- iii) a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> branched or straight chain lower alkyl, allyl, allyloxy, vinyl, or vinyloxy;
- iv) an OH, or a C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> or C<sub>5</sub> primary, secondary, or tertiary alcohol;

- v)  $\text{NH}_2$  or an amino, lower alkylamino, arylamino, aralkylamino, cycloalkylamino, heterocycloamino, aroylamino, aralkanoylamino, amido, lower alkylamino, arylamido, cycloalkylamido, heterocycloamido, aroylamido, or aralkanoylamido;
- vi) oxo, lower alkanoyl, thio, sulfonyl, sulfonamide, nitro, nitrosyl, cyano, carboxy, carbamyl, aryl, or heterocycle; and

$\text{R}_4$ ,  $\text{R}_5$ , and  $\text{R}_9$  are hydrogen.

54. (withdrawn - currently amended) The method of claim 53, wherein  $\text{R}_3$  is  $-\text{CH}_3$ ,  $-\text{CH}_2\text{CH}_3$ ,  $-\text{OCH}_2\text{CH}_3$ ,  $-\text{F}$ ,  $-\text{Br}$ ,  $-\text{CF}_3$ ,  $-\text{CBr}_3$ ,  $-\text{OH}$ ,  $-\text{O}-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  ~~$-\text{CH}_2-\text{CH}_2=\text{CH}_2$~~ ,  $-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  $-\text{NH}_2$ ,  $-\text{NO}_2$ , -cyano, -carboxy, or -benzyl.

55. (withdrawn) The method of claim 49, wherein said vascular proliferative disorder is selected from the group consisting of solid tumor cancer, wet age-related macular degeneration, diabetic retinopathy, retinopathy of prematurity, diabetic macular edema, uveitis, corneal neovascularization, psoriasis, rheumatoid arthritis, atheroma, restenosis, Kaposi's sarcoma, haemangioma, and inflammatory diseases characterized by vascular proliferation.

56. (withdrawn) The method of claim 49, wherein the blood flow reduction causes the occlusion, destruction, or damage of proliferating vasculature.

57. (original) A composition selected from the group consisting of  
6-[(Z)-2-(3,4,5-Trimethoxyphenyl) vinyl]-1,2-dihydroxybenzene,  
3-Ethyl-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
3-Methyl-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
4-Bromo-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
4-Phenyl-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
3-Allyl-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
4-Fluoro-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-1,2-dihydroxybenzene,  
2,3,4-Trihydroxy-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-benzene,  
2,3-Dihydroxy-4-ethoxy-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-benzene,

2,3-Dihydroxy-4-allyloxy-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-benzene,  
4-Nitro-6-[(Z)-2-(3,4,5-trimethoxyphenyl)vinyl]-2,3-dihydroxybenzene,  
2',3'dihydroxy -3,5 dichloro4,4'-dimethoxy-(Z)-stilbene,  
2',3' dihydroxy-4'-methoxy-3,4,5-trifluoro-(Z)-stilbene,  
2,3-Dihydroxy-4-methoxy-[(Z)-2-(3,4,5-trimethoxyphenyl) Beta-lactam]-benzene,  
2',3' diphosphate-3,4,5-trimethoxy-(Z)-stilbene, tetrasodium salt;  
3',4' diphosphate-3,4,5-trimethoxy-(Z)-stilbene, tetrasodium salt;  
and combinations thereof.